

(12) **United States Patent**
Laussermair et al.

(10) **Patent No.: US 6,324,353 B1**
(45) **Date of Patent: Nov. 27, 2001**

(54) **DOCUMENT VERIFICATION AND TRACKING SYSTEM FOR PRINTED MATERIAL**

(75) Inventors: **Thomas Laussermair; Abhijit Bhattacharya**, both of Delray, FL (US); **Michael Schmitt; Tony Ribeiro**, both of Boca Raton, FL (US); **Frank Lorenz**, Poing (DE); **Leon T. Dietz**, Apple Valley, MN (US)

(73) Assignee: **Océ Printing Systems GmbH**, Poing (DE)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/650,424**

(22) Filed: **Aug. 29, 2000**

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/394,546, filed on Sep. 13, 1999, now Pat. No. 6,137,967.

(51) Int. Cl.⁷ **G03G 15/00**

(52) U.S. Cl. 399/16; 358/462; 382/112; 399/15; 399/384

(58) Field of Search 399/1, 2, 3, 15, 399/16, 38, 49, 361, 364, 384, 306; 347/107; 358/462, 474, 498; 382/112, 181, 183

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,027,142 5/1977 Paup et al. 235/379
4,563,086 1/1986 Knapp et al. 399/49

4,980,719 12/1990 Allen et al. 399/3
5,025,483 6/1991 Dinan et al. 382/318
5,132,808 7/1992 Higuchi et al. 358/403
5,235,652 8/1993 Nally 382/112
5,299,026 3/1994 Vincett et al. 358/401
5,337,122 8/1994 Hubble, III et al. 399/49
5,488,458 * 1/1996 Benedict et al. 399/15
5,506,663 4/1996 Ulrich et al. 399/151
5,577,811 11/1996 Kobayashi et al. 297/452.15
5,635,698 6/1997 Terada 235/462
5,778,297 7/1998 Reichl et al. 399/384
5,805,967 * 9/1998 Bock et al. 399/299
6,137,967 * 10/2000 Laussermair et al. 399/16

FOREIGN PATENT DOCUMENTS

WO 99/24877 5/1999 (WO) .

* cited by examiner

Primary Examiner—Sophia S. Chen

(74) *Attorney, Agent, or Firm*—Schiff Hardin & Waite

(57) **ABSTRACT**

In a multifunctional printing method and printing system, printed material is checked, verified and tracked. For that purpose different test equipments are located in-line with a printing line. Magnetic information being printed by a printing station onto the recording carrier using magnetic ink character readable toner may be in-line tested by a magnetic test equipment, which reads information from the magnetic recording zone on the carrier. Optical information may be tested by an in-line mounted optical test equipment, respectively. Further in-line test equipment is proposed such as a laser bar code scanner and an address reader. The printing line may have additional devices such as print preprocessing unwinders or print postprocessing stackers, folders or cutters.

48 Claims, 7 Drawing Sheets

